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BRIEFER ARTICLES

A METHOD OF HANDLING MATERIAL TO BE IMBEDDED IN PARAFFINE

(WITH ONE FIGURE)

The usual method of handling material to be imbedded in paraffine is slow and tedious, and attended with some danger of damage to the material. Ordinarily, each batch is killed in a separate bottle, in which it remains up to and even through the paraffine bath. In washing, a cloth is usually tied over the end of the bottle, which is put under a running tap or thrown into a vessel of running water. Either way results in washing of questionable thoroughness. Then the various grades of alcohols and xylols are pipetted on and off, a very tedious process with small light objects that are likely to be drawn into the pipette and injured or lost.

After trying several devices, the writer has had success in eliminating these difficulties by the following method: About 6.25 cm. lengths are cut from ordinary medium thickness glass tubing of the desired diameter. One end is heated and slightly flared. Over the flared end is tightly tied a piece of thin cloth, and the excess of cloth and string closely trimmed away (fig. 1, *A*). With a stout cord, a slip knot (*B*) is quickly tied and drawn up, and holds the cloth firmly. The material is placed in this cloth-bottom tube, and remains in it through all the processes up to the paraffine bath. If the objects are large or numerous, it is better to kill in an ordinary bottle and transfer to the tube just before washing.

In washing, the tube of material is placed in a vessel of less height (such as a small salt mouth bottle), and water siphoned into the tube from a supply vessel directly under the running tap (*C*). The tube end of the siphon is drawn out fine, allowing only a small amount of water to pass over. A section of rubber tubing in the siphon gives greater flexibility. Because the water level is high in the tube, and all the fresh water flows over the material, washing is very thorough. Under all conditions the stream of water is uniform and gentle, even with considerable variation in tap pressure, as we have in Allahabad. Any number of tubes, each with a separate siphon, may be grouped around the supply vessel and washed at one time.

The series of alcohols and xylols is prepared in tightly stoppered bottles and arranged in sequence. The tubes of washed material are placed in the bottle of lowest grade alcohol and transferred at proper intervals from bottle to bottle through the series. Any number of tubes are easily and rapidly handled by means of a pair of forceps. There is no danger of losing small objects, because the top of the tube is always above the level of the reagent. With proper labels on the series bottles, the exact location of the material, and the next change, are always known at a glance. The material is left in the tubes through all the processes up to the first bath in melted paraffine.

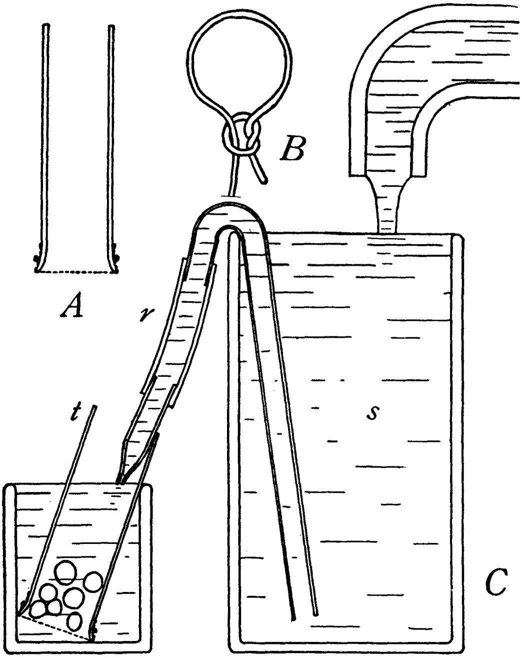

FIG. 1.—Sectional diagrams: *A*, end of tube flared and covered with cloth; *B*, rapid method of tying cord; *C*, arrangement for washing material; water flows from the tap into the supply vessel (*s*), through the siphon into the tube of material (*t*), through the cloth bottom, and overflows from the small vessel; a piece of rubber tubing (*r*) in the siphon adds flexibility.

The advantages of this method are as follows: there is no loss of time in handling large quantities of small light objects; washing is easy and thorough; there is no danger of injury to the most delicate material; no labels, except those for identification, are necessary on the separate batches of material; and the series of alcohols and xylols may be used repeatedly, for while there is a continual weakening of each grade in the series, the weakening is proportional throughout the whole series, so that their relation to each other remains practically unchanged.—WINFIELD DUDGEON, *Ewing Christian College, Allahabad, India.*

THE RELATION BETWEEN THE TRANSPIRATION STREAM AND THE ABSORPTION OF SALTS

During the winter of 1908–1909 experiments were conducted at Santiago de las Vegas, Cuba, in order to determine the comparative transpiration of tobacco plants under cheesecloth shade and in the open ground. For this purpose plants were grown in galvanized iron tanks which were set into outer incasing tanks permanently sunk in the ground. Six tanks were placed among the plants of a field of tobacco grown under cheesecloth, and six were set in an adjoining tobacco field not shaded. The quantity of water transpired by the plants in the tanks was determined by daily weighings, the quantity transpired being replaced each day. At maturity the leaves, stems, and roots of each plant were harvested separately, dried, and ground. The ash was determined in water-free samples of the ground material. From the data the total ash of the plants was calculated. The condensed results of the experiment are given in the following table.

PLANTS GROWN IN THE OPEN

No. of plant	Total water-free substance produced, in grams	Total water absorbed, in cc.	Total ash in plants, in grams	Water absorbed per gram of ash
1.	209.03	52,066	18.19	2862
3.	168.33	42,059	16.74	2512
5.	191.91	46,840	20.54	2280
6.	187.97	45,418	16.74	2713
7.	185.06	46,447	18.86	2463
9.	188.20	45,234	18.42	2456
Average.	188.42	46,344	18.25	2548